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CLAIMS

1. A method of correcting a color characteristic of an image displayed in response to a video signal comprising the steps of:

5 A) processing the video signal for predicting a variation in a physical characteristic of a display device displaying the image;

B) processing the video signal for determining a change in the color characteristic occurring in response to the variation in the physical characteristic; and

10 C) modifying the video signal for compensating for the change in the color characteristic.

2. The method of claim 1 wherein the display device comprises a color picture tube and wherein step A comprises the steps of:

15 processing the video signal for predicting a temperature distribution of a mask of the color picture tube; and

predicting a change in a location of an aperture of the mask relative to an initial location occurring in response to the temperature distribution.

3. The method of claim 1 wherein the display device comprises a color picture tube and wherein step B comprises the steps of:

20 determining a change in a register characteristic of an electron beam occurring in response to the variation in the physical characteristic; and

determining a change in the color characteristic occurring in response to the change in the register characteristic.

25 4. The method of claim 2 wherein step B comprises the steps of:

determining a change in a register characteristic of an electron beam occurring in response to the change in the location of the aperture in the mask; and

30 determining a change in the color characteristic occurring in response to the change in the register characteristic.

5. The method of claim 2 or claim 4 wherein the step of determining the temperature distribution comprises the steps of

determining the temperature distribution relative to a reference temperature distribution; and

integrating an effect of a current density distribution of a beam current of the color picture tube on the mask over time.

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6. The method of claim 3 or 4 wherein the step of determining a change in the register characteristic comprises the step of processing the video signal for predicting a space charge repulsion characteristic associated with a plurality of electron beams projected through the mask.

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7. The method of claim 1, 5, or 6 wherein the step of modifying the video signal comprises the steps of:

determining a change in a beam current of the color picture tube necessary to compensate for the change in the color characteristic; and

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modifying the video signal for producing the beam current change.

8. A method of correcting a color characteristic of an image displayed in response to a video signal comprising the steps of:

20 processing the video signal for determining a temperature variation of a mask of a color picture tube;

determining in response to the temperature variation a change in a location of an aperture of the mask relative to an initial location;

determining in response to the change in location of the aperture a change in a register characteristic of an electron beam projected through the aperture in the mask;

25 determining a change in the color characteristic occurring in response to the change in the register characteristic; and

modifying the video signal for correcting for the change in the color characteristic.

9. The method of claim 8 wherein the step of determining the change in the register characteristic comprises the step of:

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processing the video signal for predicting a space charge repulsion characteristic associated with a plurality of electron beams projected through the mask.

10. The method of claim 8 or 9 wherein the step of modifying the video signal comprises the steps of:

determining a change in a beam current of the color picture tube necessary to compensate for the change in the color characteristic; and

5 modifying the video signal for producing the beam current change.

11. Apparatus for correcting a color characteristic of an image displayed in response to a video signal comprising:

10 means for processing a video signal for predicting a variation in a physical characteristic of a display device displaying an image in response to the video signal, and for processing the video signal for determining a change in a color characteristic of the image occurring in response to the variation in the physical characteristic; and

means for modifying the video signal for compensating for the change in the color characteristic.